Henry Wadsworth

Flash Research Assignment #1

Data Centers and Networking

 This past year, we’ve had a high number of outages to our ERP system, costing our firm $14,800 per minute of downtime. This adds up to $25,592,515 per year of capital lost to downtime. To correct this, we should invest in our infrastructure and upgrade our Tier I Basic Capacity data center to a Tier III Concurrently Maintainable data center. This will knock down our total outage time from our high of 28 hours down to under two hours per year, working out to a savings of $24,192,317 per year. This a roughly 94% reduction in downtime (and costs). Our uptime would rise to 99.982% from it’s current availability of 99.671%

 There is a set of standards accepted by the IT operations industry to rank data centers by uptime and redundancy. Our current Tier I data center doesn’t incorporate any redundancy, meaning it could be taken down by situations like power or equipment failure or even routine maintenance. I propose building a $35 million Tier III data center. A Tier III data center has redundant components and connections: one active and one alternate distribution path. These extra components mean shutdowns will not be necessary in case of equipment failure or maintenance. This means necessary regular maintenance will not have to be rescheduled or shelved for the sake of uptime since a Tier III data center does not require downtime to be maintained. Each device will have uninterruptable power supply’s. There will be alternative, on-site power sources as well, such as multiple diesel generators with large storage tanks for an extended period of primary power loss. There would be multiple alternate distribution paths for mission-critical systems.

 In three years, our $35 million investment in a Tier III data center will provide our firm with a total savings of $48,384,634. If we fail to act and continue to use our Tier I data center, it will continue to cost us ~$24 million per year compared to the Tier III cost of a paltry $1,400,198 a year. When considering the total savings and the cost of building, we would save $13,384,634. This savings coupled with the increased reliability provides the cornerstone to the next steps of our growing business. Providing a data center with high uptime is essential to a robust, efficient organization. If our associates and customers have trouble accessing our services due to downtime, we will lose more than just money and productivity; our reputation will erode.

## References

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| Estimated Savings Year-Over-Year |  |
|  | Year 1 | Year 2 | Year 3 |  |
| Cost |  $35,000,000  |  $-  |  $-  |  |
| Savings |  $-  |  $24,192,317  |  $24,192,317  |  |
|  |  |  | Total Savings: |  $48,384,634  |
|  |  |  | Total Savings minus cost: |  $13,384,634  |

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| Tier Comparison |  |  |  |
|  | Uptime % | Downtime (in minutes per year) | Minutes in a year | Cost ($14800/minute) |
| Tier I | 99.671% | 1729.224 | 525600 |  $25,592,515.20  |
| Tier III | 99.982% | 94.608 | 525600 |  $1,400,198.40  |
|  |  |  | Savings per year: |  $24,192,316.80  |